

---

# **Electrochemistry: Symposium on Interfacial Electrochemistry in Honor of Brian E. Conway**

---

## **Editors:**

**B. R. MacDougall**

National Research Council of Canada  
Ottawa, Ontario, Canada

**E. Gileadi**

Tel-Aviv University  
Tel-Aviv, Israel

**J. Leddy**

The University of Iowa  
Iowa City, Iowa, USA

**S. Trasatti**

University of Milan  
Milan, Italy

**C. Bock**

National Research Council of Canada  
Ottawa, Ontario, Canada

**S. Gottesfeld**

Cellera Technologies  
Caesaria, Israel

**B. Scrosati**

University of Rome, La Sapienza  
Rome, Italy

**S. Morin**

York University  
Woodbridge, Ontario, Canada

## **Sponsoring Divisions:**

**Physical and Analytical Electrochemistry****Energy Technology****Battery****Corrosion****Electrodeposition**

Published by

**The Electrochemical Society**65 South Main Street, Building D  
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

[www.electrochem.org](http://www.electrochem.org)**ecstransactions**™**Vol. 25 No. 23**

---

Copyright 2010 by The Electrochemical Society.  
All rights reserved.

This book has been registered with Copyright Clearance Center.  
For further information, please contact the Copyright Clearance Center,  
Salem, Massachusetts.

Published by:

The Electrochemical Society  
65 South Main Street  
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902  
Fax 609.737.2743  
e-mail: [ecs@electrochem.org](mailto:ecs@electrochem.org)  
Web: [www.electrochem.org](http://www.electrochem.org)

ISSN 1938-6737 (online)  
ISSN 1938-5862 (print)  
ISSN 2151-2051 (cd-rom)

ISBN 978-1-56677-790-2 (PDF)  
ISBN 978-1-60768-140-3 (Softcover)

Printed in the United States of America.

---

**ECS Transactions, Volume 25, Issue 23**

Electrochemistry: Symposium on Interfacial Electrochemistry in Honor of Brian E. Conway

**Table of Contents**

<i>Preface</i>	<i>iii</i>
----------------	------------

**Chapter 1  
Electrocatalysis**

Active Site and Electrocatalytic Behavior at Palladium Electrode Surfaces <i>L. C. Nagle, S. Garbarino and D. Burke</i>	3
--	---

**Chapter 2  
Capacitors and Supercapacitors**

Electrochemical Characteristics of Titanium Carbide Derived Carbon 1-Ethyl-3-Methylimidazolium Tetrafluoroborate Electrical Double Layer Capacitors <i>H. Kurig, T. Romann, A. Jänes and E. Lust</i>	15
---	----

ILHYPOS Ionic Liquid-Based Supercapacitors <i>C. Arbizzani, M. Lazzari, F. Soavi, M. Mastragostino and M. Conte</i>	25
--	----

**Chapter 3  
Fuel Cells, ORR, etc.**

Oxygen Reduction at Cobalt Phthalocyanine Modified Au(111) Electrodes <i>M. Khanfar and S. Morin</i>	33
---	----

Triode Operation of a Proton Exchange Membrane (PEM) Methanol Electrolyser <i>C. R. Cloutier and D. P. Wilkinson</i>	47
---	----

A Molecular Dynamics Study of the Effect of Incident Angle on Dissociation Probability of H <sub>2</sub> /D <sub>2</sub> - Pt(111) System <i>T. Koido, D. Ito, T. Tokumasu, K. Tomarikawa and S. Yonemura</i>	59
--	----

## **Chapter 4 Poster Session**

Capacitive Behavior of Birnessite-Type Manganese Oxide Films Intercalated with Various Metal Ions <i>R. Inoue and M. Nakayama</i>	71
--	----

Halogen Adsorption on Pt(111) and Palladium Monolayer Electrocatalysts: DFT Study <i>I. A. Pašti and S. Mentus</i>	79
---	----

## **Chapter 5 Electrolysis and Electrochemical Engineering**

Mesoscopic Transport Effects in Electrocatalytic Reactions <i>Y. Seidel, Z. Jusys, B. Wickman, B. Kasemo and R. Behm</i>	91
---	----

Materials for Electrocatalysis of Oxygen Evolution Process in PEM Water Electrolysis Cells <i>R. Tunold, A. T. Marshall, E. Rasten, M. Tsypkin, L. Owe and S. Sunde</i>	103
--	-----

Non-Precious Metal Electrocatalyst for Oxygen Evolution in Polymer Electrolyte Water Electrolysis <i>K. Matsuzawa, C. Igarashi, S. Mitsushima and K. Ota</i>	119
---	-----

Theoretical Analysis of the Limiting Diffusion Current at a 'Particulate Rotating Disk Electrode' <i>A. M. Chaparro, A. J. Martín and L. Daza</i>	125
--	-----

## **Chapter 6 Electrocatalysis and Surface-Electrochemistry**

Two Types of Platinum Dissolution in Acid Media: An Electrochemical Nanogravimetric Study <i>G. Inzelt, B. Berkes and Á. Kriston</i>	137
---	-----

**Chapter 7**  
**Organics, Ionics and Catalyst Structure**

Aqueous Redox Potentials Found to be Inversely Proportional to the Bohr Radius      159  
*R. Heyrovská*

Author Index      165